

AMENDMENT TO THE CLAIMS

- 1.(currently amended) An apparatus comprising:
a carousel rotationally coupled to a base; and
a plurality of assembly stations including a merge station having a merge tool to merge at least one head or head suspension ~~assemblies~~assembly of a data storage device proximate to a disc and the carousel being rotatable relative to the plurality of assembly stations.
2. (original) The apparatus of claim 1 wherein the plurality of assembly stations include a load/unload station and the carousel is rotatable between the load/unload station and the merge station.
3. (currently amended) The apparatus of claim 2 wherein the plurality of assembly stations include a premerge station between the load/unload station and the merge station and the premerge station includes a pre-merge cam assembly to preposition the at least one head or the head suspension ~~assemblies~~assembly of the data storage device for merge operations.
4. (currently amended) The apparatus of claim 2 wherein the plurality of assembly stations include a post-merge station between the merge station and the load/unload station and the post-merge station includes a gripper assembly to remove a shipping comb of the at least one head suspension ~~assemblies~~assembly.
5. (original) The apparatus of claim 1 wherein the carousel includes a plurality of assembly nests and the merge tool is compliantly supported between a raised position and a lowered position proximate to the carousel and the merge tool includes at least one pin insertable into a datum socket or opening of the plurality of assembly nests.

6. (original) The apparatus of claim 5 wherein the datum socket or opening is formed between three rollers or bearings to provide an adjustable interface between the merge tool and the plurality of assembly nests.

7. (original) The apparatus of claim 5 wherein the datum socket or opening is formed between opposed spaced rollers or bearings to provide an axially adjustable interface between the merge tool and the plurality of assembly nests.

8. (currently amended) The apparatus of claim 1 wherein the carousel includes a plurality of assembly nests including a plurality of nest pads and the merge tool includes a plurality of nest balls which mate with the plurality of nest pads on the plurality of assembly nests.

9. (currently amended) The apparatus of claim 1 wherein the merge tool includes a merge head including at least one ~~plurality of~~ merge fingers or spreaders to engage the at least one heads or ~~the head suspension assemblies~~ assembly to merge the at least one heads or ~~the head suspension assemblies~~ assembly relative to the discs.

10. (original) The apparatus of claim 9 wherein the merge head includes a yoke portion rotationally coupled to the merge head and spring biased relative to the ~~plurality of~~ at least one merge fingers or spreaders and the apparatus including a yoke latch assembly to restrict rotation of the yoke portion during merge operations.

11. (currently amended) The apparatus of claim 1 wherein the apparatus includes a machine vision system using an image of the at least one heads or head suspension ~~assemblies~~ assembly area prior to or following merge operation .

12. (original) The apparatus of claim 11 wherein the machine vision system measures one of comb angle or position, head suspension angle or position, comb presence or latch position .

13. (currently amended) ~~A rotatable~~The apparatus of claim 1 wherein the carousel includes at least one plurality of assembly nests comprising:

a nest cavity formed relative to edge surfaces of a nest body; and

at least one finger cantilevered relative to the nest cavity ~~of the plurality of assembly nests and rotatable therewith to engage a workpiece~~a component of the data storage device securable in the nest cavity.

14. (currently amended) ~~The rotatable carousel apparatus~~of claim 13 wherein the workpiece data storage device includes a hydrodynamic spindle assembly and the at least one finger includes a spring biased tip portion positioned to provide a biasing force relative to the spindle assembly of the ~~workpiece~~data storage device.

15. (currently amended) ~~The rotatable carousel apparatus~~of claim 13 wherein the at least one finger is movably coupled relative to the nest body of the plurality of at least one assembly nest and is actuatable via a cam assembly to position the at least one finger to engage the workpiece component of the data storage device insertable into the nest cavity.

16. (currently amended) ~~The rotatable carousel apparatus~~of claim 15 wherein the plurality of assembly stations includes a premerge station and the premerge station comprises a cam assembly operable to move workpiece ~~is a data storage device and including~~opposed fingers coupled to a positioning arm actuatable by the cam assembly to position the head suspension assembly or assemblies for merge operation.

17. (original) The rotatable carousel of claim 13 wherein the ~~plurality of at least one~~ assembly nests includes a nest plate forming the nest body and the nest plate is removably coupled to the rotatable carousel.

18. (currently amended) ~~An assembly~~ The apparatus of claim 1 and comprising:

~~a conveyor;~~

~~----- a rotatable carousel; and~~

a lift operable between a retracted position proximate to ~~the~~ conveyor and a raised position proximate to the carousel to load workpieces from the conveyor onto the rotatable carousel and unload workpieces from the rotatable carousel to the conveyor.

19. (cancelled).

20. (cancelled).

21. (cancelled).

22. (currently amended) The assembly apparatus of claim ~~21~~ wherein the carousel includes plurality of assembly nests and the plurality of assembly nests include opposed latch assemblies operable between a retracted unlatched position to load the workpieces and an extended latched position.

Claims 23-26 (cancelled)

27. (new) The apparatus of claim 1 wherein the carousel includes a plurality of assembly nests removably coupled to a carousel plate.

28. (new) The apparatus of claim 1 wherein the carousel includes at least one assembly nest and the at least one assembly nest includes a datum opening.

29. (new) The apparatus of claim 28 wherein the at least one assembly nest includes a plurality of datum openings including a rotational datum opening and an axial datum opening spaced from the rotational datum opening.

30. (new) The apparatus of claim 29 wherein the merge tool includes a first pin insertable into the rotational datum opening and a second pin insertable into the axial datum opening, and the first pin is rotatable in the rotational datum opening to align the merge tool.

31. (new) The apparatus of claim 1 wherein the carousel includes at least one assembly nest and the at least one assembly nest includes at least one fixed bearing along a first edge of the at least one assembly nest and at least one spring loaded bearing along a second edge of the at least one assembly nest spaced from the first edge.

32. (new) The apparatus of claim 4 wherein the apparatus includes a vision system that receives a feedback image to verify removal of the shipping comb by the gripper assembly.

33. (new) The apparatus of claim 1 wherein the merge tool includes at least one merge finger or spreader and a motor operable to rotate the at least one merge finger or spreader in a first direction to merge the at least one head or head suspension assembly and operable to rotate the at least one merge finger or spreader in a second opposite direction to remove the at least one merge finger or spreader.